

Claims

What is claimed is:

1. A method for dynamically allocating network transport resources in a diverse satellite communications network including a plurality of satellites and a plurality of uplink stations, the method comprising:

allocating a satellite from the plurality of satellites for a file transmission;

allocating a channel of the satellite, a bandwidth, and a time slice for the file transmission;

providing information concerning the satellite, channel, bandwidth, and time slice allocations to a plurality of geographically distributed controllers, each of which are coupled to one of the plurality of uplink stations; and

using the controllers to adjust the allocated bandwidth, time slice, or both in order to optimize file transmission over the network.

2. The method of claim 1, further comprising contacting recipients of the file transmission in order to confirm receipt thereof.

3. The method of claim 2, further comprising contacting a group of recipients of the file to be transmitted over the network to inform the recipients of a transmission time.

4. The method of claim 3, further comprising sending an authorizing message before any file transmission over an uplink station.

5. The method of claim 1, wherein allocating a satellite from the plurality of satellites comprises:

receiving a request from one of the plurality of geographically distributed controllers to transmit a file to a client list; and

determining which of the plurality of satellites serves clients on the client list.

6. The method of claim 5, further comprising allocating more than one satellite for the file transmission when the client list includes clients served by more than one of the plurality of satellites.

7. The method of claim 5, wherein each satellite of the plurality of satellites serves a client pool.

8. The method of claim 7, wherein determining which of the plurality of satellites serves clients on the client list comprises determining a client pool to which each client on the client list belongs.

9. The method of claim 8, further comprising allocating a satellite from the plurality of satellites for each client pool represented.

10. A method for managing multicast file distribution over a diverse satellite communications network including a plurality of satellites and a plurality of uplink stations, the method comprising:

storing at a first server information concerning:

the capacity of each satellite, and

the client pool served by each satellite;

receiving at the first server requests for access to satellites within the network, wherein each request includes a client list and contains at least some information relevant to setting a priority to be assigned the request;

for each request, identifying the client pools to which the clients on the client list belong;

for each client pool identified, forwarding to a local server information assigning a selected request a priority, a satellite, a channel, a time slice, and a transfer rate for a particular request for file transmission; and

causing the local server to either adopt the time slice and transfer rate or to assign the request a different transfer rate, one or more different time slices, or both.

11. The method of claim 10, further comprising contacting recipients of the file transmission in order to confirm receipt thereof.

12. The method of claim 11, further comprising contacting a group of recipients of the file to be transmitted over the network to inform the recipients of a transmission time.

13. The method of claim 12, further comprising sending an authorizing message before any file transmission over an uplink station.

14. The method of claim 10, further comprising receiving data at the local server describing the capacity or performance of communications equipment coupled to the local server.

15. The method of claim 10, wherein a priority is assigned to a request based on a first-come-first-serve basis.

16. The method of claim 10, wherein a priority is assigned to a request based on the type of media content to be distributed.

17. A system for allocating network transport resources in a diverse satellite communications network including a plurality of satellites and a plurality of uplink stations, the system comprising:

a master arbitration server that:

allocates a satellite from the plurality of satellites,

allocates a channel of the satellite, a time slice, and a transfer rate,

and provides information on these allocations to each of at least two

local arbitration servers:

the at least two local arbitration servers, each communicating with a satellite of the plurality of satellites and adapted to:

dynamically evaluate each request for transmission to determine whether to overlay upon the allocations by the master arbitration server an adjusted allocation changing the time slice, the transfer rate, or both associated with each request; and

communicate with the master arbitration server regarding any changes to the time slice, the transfer rate, or both.

18. The system of claim 17, wherein the master arbitration server allocates a satellite from the plurality of satellites upon receiving a request from one of the at least two

local arbitration servers to transmit a file to a client list and determining which of the plurality of satellites serves clients on the client list.

19. The system of claim 17, wherein the master arbitration server stores information concerning the capacity of each satellite and the client pool served by each satellite.

20. The system of claim 19, wherein upon receipt of a request from one of the at least two local arbitration servers to transmit a file to a client list, the master arbitration server identifies the client pools to which the clients on the client lists belong and allocates a satellite for each client pool identified.

21. The system of claim 17, wherein the master arbitration server:
recognizes when an open time slice exists on any of the plurality of satellites,
and
uses the open time slice to distribute diagnostic requests or software upgrades to a client pool associated with the satellite on which the open time slice exists.